

CLAIMS

1. A driver circuit operating in stages that comprise a programming stage and a reproduction stage, the circuit comprising: a plurality of current paths each of which passes through the circuit, a current driven element, a transistor connected so as operatively to control the current supplied to the said element, a capacitor connected for storing an operating voltage of the transistor during the programming stage, and switching means which control the current paths, the arrangement being such that one of the current paths does not include the said element.

2. A driver circuit for driving a pixel of an electroluminescent device, the pixel including an electroluminescent element and the circuit comprising; a transistor connected so as operatively to control the current supplied to the electroluminescent element, a capacitor connected for storing an operating voltage of the transistor during a programming stage, a first switching means connected so as to establish when operative a current path through the transistor during the programming stage, and a second switching means connected so as to establish when operative a current path through the transistor and the electroluminescent element during a reproduction stage, wherein the first switching means is connected such that the current path during the programming stage does not pass through the electroluminescent element.

3. A driver circuit for driving a pixel of an electroluminescent device, the pixel including an electroluminescent element and the circuit comprising; a transistor connected so as operatively to control the current supplied to the electroluminescent element, a capacitor

connected for storing an operating voltage of the transistor during a programming stage, a first switching means connected so as to establish when operative a current path through the transistor during the programming stage, a second switching means connected so as to establish when operative a current path through the transistor and the electroluminescent element during a reproduction stage, and a current sink, the first switching means being connected such that the current path during the programming stage is through the transistor to the current sink.

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4. A driver circuit as claimed in claim 2 or 3, wherein the first and second switching means are controlled by respective control signals separate from each other.

5. A driver circuit as claimed in any of claims 1 to 4, further comprising a third switching means, the third switching means being connected to bias the transistor to act as a diode during the programming stage.

6. A driver circuit as claimed in claim 5, wherein the third switching means connects the first switching means to the source/drain current path of the transistor.

7. A driver circuit as claimed in claim 5, wherein the third switching means connects the first switching means to the gate of the transistor.

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8. A driver circuit as claimed in any of claims 2 to 7, wherein an additional transistor is connected in parallel with the said transistor, an additional switching means

interconnects the drains of the transistors, and the gate of the additional transistor is connected to the gate of the said transistor.

9. A driver circuit as claimed in claim 8, comprising a plurality of additional transistors each with a respective additional switching means, each additional transistor and additional switching means being connected as aforesaid with the additional switching means being connected in series with each other.

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10. A driver circuit as claimed in any preceding claim, wherein the circuit is implemented with polysilicon thin film transistors.

11. A method of controlling the current supply to an electroluminescent element comprising the steps of providing a current path during a programming stage which path does not pass through the electroluminescent element and of providing a current path during a reproduction stage which path does pass through the electroluminescent element.

12. A method of controlling the current supply to an electroluminescent element comprising the steps of providing a current path during a programming stage which path connects to a current sink and of providing a current path during a reproduction stage which path passes through the electroluminescent element.

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13. An electroluminescent display device comprising one or more driver circuits as claimed in any of claims 1 to 10.

14. An electronic apparatus incorporating an electroluminescent display device as claimed in claim 13.

15. A driver circuit as claimed in claim 5, wherein the third switching means is disposed between the capacitor and the first switching means.

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A5* 16. A driver circuit as claimed in any of claims 1 to 10, wherein the said transistor
is a p-channel thin film transistor

17. A driver circuit as claimed in claim 5, wherein the first, the second, and the third stitching means are formed of respective n-channel thin film transistors.

18. A circuit comprising a current driven element, the circuit providing a first current path including the current driven element and a second current path not including the current driven element.

19. A circuit comprising a current driven element, the circuit providing a first current path flowing a current through the current driven element, and a second current path not flowing current through the current driven element.

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A6* 20. The circuit according to claim 18 or claim 19, further comprising a transistor for controlling a current supplied to the current driven element.

21. The circuit according to claim 20, wherein the second current path is disposed so that the second current path is enabled to be connected to a power source.

22. The circuit according to claim 20, wherein the second current path further includes a first switching means.

23. The circuit according to claim 20, wherein the second current path includes at least one of the transistor and another transistor that determines a current flowing through the transistor.

24. The circuit according to claim 20, further comprising a capacitor connected to a gate of the transistor.

25. The circuit according to claim 24, further comprising a second switching means disposed between the current driven element and the transistor.

26. The circuit according to claim 25, further comprising a third switching means disposed between the first switching means and the capacitor.

27. The circuit according to claim 25, wherein the first switching means and the second switching means are controlled by respective control signals separated from each other.

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28. The circuit according to claim 18 or claim 19, wherein the current driven element is an organic electroluminescent element.

29. The circuit according to claim 20, wherein the transistor is a p-channel thin film transistor.

30. The circuit according to claim 26, wherein the first, the second, and the third switching means are n-channel thin film transistors.

31. The circuit according to claim 20, wherein the first current path and the second current path including the transistor

32. An electro-optical device having a plurality of pixels and at least one pixel comprising a circuit with a current driven element and a current determining means for determining a current according to a data signal, the circuit providing a first current path including the current driven element and a second current path not including the current driven element.

33. An electronic apparatus including the electro-optical device according to claim

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34. The circuit according to claim 18 or claim 19, wherein the second current path is connected to a current sink.

35. The circuit according to claim 21, wherein the second current path is connected to a current sink.

36. A method for driving a circuit comprising a current driven element and a transistor that controls a current supplied to the current driven element, comprising a step of determining a gate voltage of the transistor based on a predetermined current.

37. . The method according to claim 36, further comprising a step of supplying a current to the current driven element.

38. The method according to claim 36, wherein no current is supplied to the current driven element during the step of determining a gate voltage of the transistor based on a predetermined current.

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